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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,859	03/25/2004	Makoto Doi	36608	6682

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EXAMINER	
REDDING, THOMAS M	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,859	DOI ET AL.	
	Examiner	Art Unit	
	Thomas M. Redding	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/25/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 6 and 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract should stand on its own without requiring reference to the rest of the specification. At present, the abstract refers to elements labeled by reference numbers in the drawings (e.g. camera 2, camera 3 and camera 9). The abstract should be rephrased for clarity without requiring reference to the drawings. Correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 5-11 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al. (JP 2002-122899) in combination with Fukuchi et al. (US 5,243,184). A machine translation of JP 2002-122899, provided herewith, is being relied upon by the examiner for the time being. A formal translation is on order, and will be provided with the mailing of the next Office Action.

Regarding claims 1 and 9, Doi'899 discloses [a]n authentication object image pick-up device comprising:

eye image pick-up device being pointed at a direction of an eye of the authenticated person ("a telephotographic camera picturizes the iris", Doi'899, paragraph 8, and

drawing 1, reference 22 – telephotographic camera, reference 23 - rotating mirror and reference 20 – tilt base), said direction is obtained by analyzing the face image of the authenticated person picked up by the image pick-up device, for picking up an eye image of the authenticated person ("a control section 30 distinguishes whether as for close, a face is in an image pick-up image by pattern-matching processing, and when close is not, a face outputs an actuation command to the motor 21 ...", Doi'899, paragraph 49);

monitoring image pick-up device for picking up an image of a circumference of places in which the eye image pick-up device are provided ("the telephotographic camera which picturizes the iris of said photographic subject from the image pick-up image of said wide angle camera", "Doi'899, paragraph 5, the wide angle camera is the monitoring image pick-up device);

Doi'899 does not disclose a face image pick-up device for picking up a face image of a person to be authenticated; and control section for analyzing an image picked up by the monitoring image pick-up device to obtain a position of a face of the authenticated person,.

However, the disclosure of Doi does suggest using a camera covering a wide field of view to direct another camera with a narrower field of view which could be used to implement a face image pick-up device for picking up a face image of a person to be authenticated ("The wide angle camera which picturizes a photographic subject in the

iris image pick-up equipment", Doi'899, paragraph 5); and control section for analyzing an image picked up by the monitoring image pick-up device to obtain a position of a face of the authenticated person ("a control section 30 distinguishes whether as for close, a face is in an image pick-up image by pattern-matching processing, and when close is not, a face outputs an actuation command to the motor 21 ...", Doi'899, paragraph 49);

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the teachings of Doi'899 to control a face image pick-up device for picking up a face image of a person to be authenticated as an intermediate stage in the system disclosed by Doi'899 in order to get a more accurate estimate of the eye and iris positions of a subject by using a higher resolution picture than would be available from the wide angle camera. It also would permit using lower cost cameras and optics where the resolution of the wide-angle camera may permit locating a face, but would not be able to resolve eyes directly.

Further more, Doi'899 does not teach pointing an image pick-up direction of the face image pick-up device at a direction of the face position before the authenticated person enters to a shooting range of the face image pick-up device.

Fukuchi, working in the same problem solving area of movable camera control, does teach pointing an image pick-up direction of the face image pick-up device at a

direction of the face position before the authenticated person enters to a shooting range of the face image pick-up device ("The mirror rotation angle computing unit 26 anticipates a position where the bottle 10 will be next imaged, ... and computes a mirror rotation angle A which will enable the bottle 10 to be imaged at the anticipated position", Fukuchi, column 2, line 66).

It would have been obvious at the time the invention was made to use the position anticipation teaching of Fukuchi in the system disclose by Doi'899 in order to accurately capture an iris image when the subject is in position. Fukuchi method further strives to capture the image such that the subject of interest is in the center of the frame ("Resultantly the bottle 10 can be imaged by the camera 14 constantly at a position near the center of a frame P", Fukuchi, column 4, line 63) which would be of value in iris recognition as distortions introduced by lens aberrations would be minimal towards the center of the view ("Since aberration exists in the lens periphery of a camera, it is desirable that an iris image comes in the center of an image pick-up image to obtain an iris image with a high authentication precision", Doi'899, paragraph 51). Fukuchi also needs to complete inspections quickly and his method provides an efficient means to perform inspections in a minimal amount of time.

Regarding claims 2 and 10, the combination of Doi'899 and Fukuchi teaches [a]n authentication object image pick-up device comprising:

eye image pick-up device for picking up an eye image of a person to be authenticated ("a telephotographic camera picturizes the iris", Doi'899, paragraph 8, and drawing 1, reference 22 – telephotographic camera, reference 23 - rotating mirror and reference 20 – tilt base);

monitoring image pick-up device for picking up an image of a circumference of a place in which the eye image pick-up device is provided ("the telephotographic camera which picturizes the iris of said photographic subject from the image pick-up image of said wide angle camera", "Doi'899, paragraph 5, the wide angle camera is the monitoring image pick-up device); and

control section for analyzing an image picked up by the monitoring image pick-up device to obtain a position of an eye of the authenticated person ("a control section 30 distinguishes whether as for close, a face is in an image pick-up image by pattern-matching processing, and when close is not, a face outputs an actuation command to the motor 21 ...", Doi'899, paragraph 49),

and pointing an image pick-up direction of the eye image pick-up device at a direction of the eye position before the authenticated person enters to a shooting range of the eye image pick-up device ("The mirror rotation angle computing unit 26 anticipates a position where the bottle 10 will be next imaged, ... and computes a mirror rotation angle A which will enable the bottle 10 to be imaged at the anticipated position", Fukuchi, column 2, line 66).

Regarding claims 3 and 10, the combination of Doi'899 and Fukuchi teaches wherein the control section obtains the eye position of the authenticated person from a position of a head top portion of the authenticated person acquired from the image picked up by the monitoring image pick-up device ("And by the following step S4, when, as for the control section 30, the face is not contained by distinguishing by pattern-matching processing in whether the face is contained into the image pick-up image, a drive command is outputted to the motor 21 for tilts through the motor control section 31", Doi'899, paragraph 49, in looking for the position of the eyes, the system first identifies the face which is in the head of the person being authenticated) and information about a distance to the authenticated person acquired by distance measuring device ("The ranging sensor which measures the distance to said photographic subject", Doi'899, paragraph 5).

Regarding claims 5, 6, 13, 14 and 15, the combination of Doi'899 and Fukuchi teaches wherein an iris pattern or a retina pattern is extracted from the eye image ("the illumination light to which the iris lighting implements 12 and 13 converged on coincidence may be irradiated by the iris so that a control section 30 may change into the coordinate of a telephotographic camera 22 the location of the eye for which it asked at step S8 and a telephotographic camera 22 may catch the iris with high precision", Doi'899, paragraph 52).

Regarding claims 7 and 16, the combination of Doi'899 and Fukuchi teaches [a]n authentication object image pick-up device comprising:

face image pick-up device for picking up a face image of a person to be authenticated;

monitoring image pick-up device for picking up an image of a circumference of a place in which the face image pick-up device is provided ("the telephotographic camera which picturizes the iris of said photographic subject from the image pick-up image of said wide angle camera", "Doi'899, paragraph 5, the wide angle camera is the monitoring image pick-up device); and

control section for analyzing an image picked up by the monitoring image pick-up device to obtain a position of a face of the authenticated person, and pointing an image pick-up direction of the face image pick-up device at a direction of a position of the face before the authenticated person enters a shooting range of the face image pick-up device ("a control section 30 distinguishes whether as for close, a face is in an image pick-up image by pattern-matching processing, and when close is not, a face outputs an actuation command to the motor 21 ...", Doi'899, paragraph 49, and "The mirror rotation angle computing unit 26 anticipates a position where the bottle 10 will be next imaged, ... and computes a mirror rotation angle A which will enable the bottle 10 to be imaged at the anticipated position", Fukuchi, column 2, line 66).

Regarding claims 8 and 17, the combination of Doi'899 and Fukuchi teaches wherein the control section extracts a face feature pattern from the face image ("the

image pick-up image then obtained is acquired as an iris image for authentication", Doi'899, paragraph 54, the iris is a feature of the face).

4. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al. (JP 2002-122899) and Fukuchi et al. (US 5,243,184) in combination with Nakajima et al. (US 6,049,747).

The combination of Doi'899 and Fukuchi teaches wherein the control section obtains the position of the eye from a position of a head top portion of the authenticated person ("And by the following step S4,when, as for the control section 30, the face is not contained by distinguishing by pattern-matching processing in whether the face is contained into the image pick-up image, a drive command is outputted to the motor 21 for tilts through the motor control section 31", Doi'899, paragraph 49, in looking for the position of the eyes, the system first identifies the face which is in the head of the person being authenticated).

The combination of Doi'899 and Fukuchi does not teach that the position of a head top portion of the authenticated person is acquired from the image picked up by the monitoring image pick-up device and a position of a shoulder or an ear of the authenticated person.

Nakajima working in the same problem solving area of mapping facial features does teach finding the orientation of a head image by a position of a shoulder or an ear of the authenticated person ("Meanwhile, the direction of a human face can be represented by the following three coordinates, as shown in FIG. 16: 1. direction of a line connecting right and left ears (X-coordinate) 2. direction of a line connecting a chin to the top of a head (Y-coordinate) ...", Nakajima, column 8, line 42)

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the orientation method taught by Nakajima in combination with the iris recognition system of the combination of Doi'899 and Fukuchi in order to more accurately predict the eye location from a low resolution image that contains a head image.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nayar et al. (US 6,215,519) teaches using a wide area camera to guide the position of a Pan/Tilt/Zoom (PTZ) camera

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Redding whose telephone number is (571) 270-1579. The examiner can normally be reached on Mon - Fri 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TMR/

VIKKRAM BALI
PRIMARY EXAMINER